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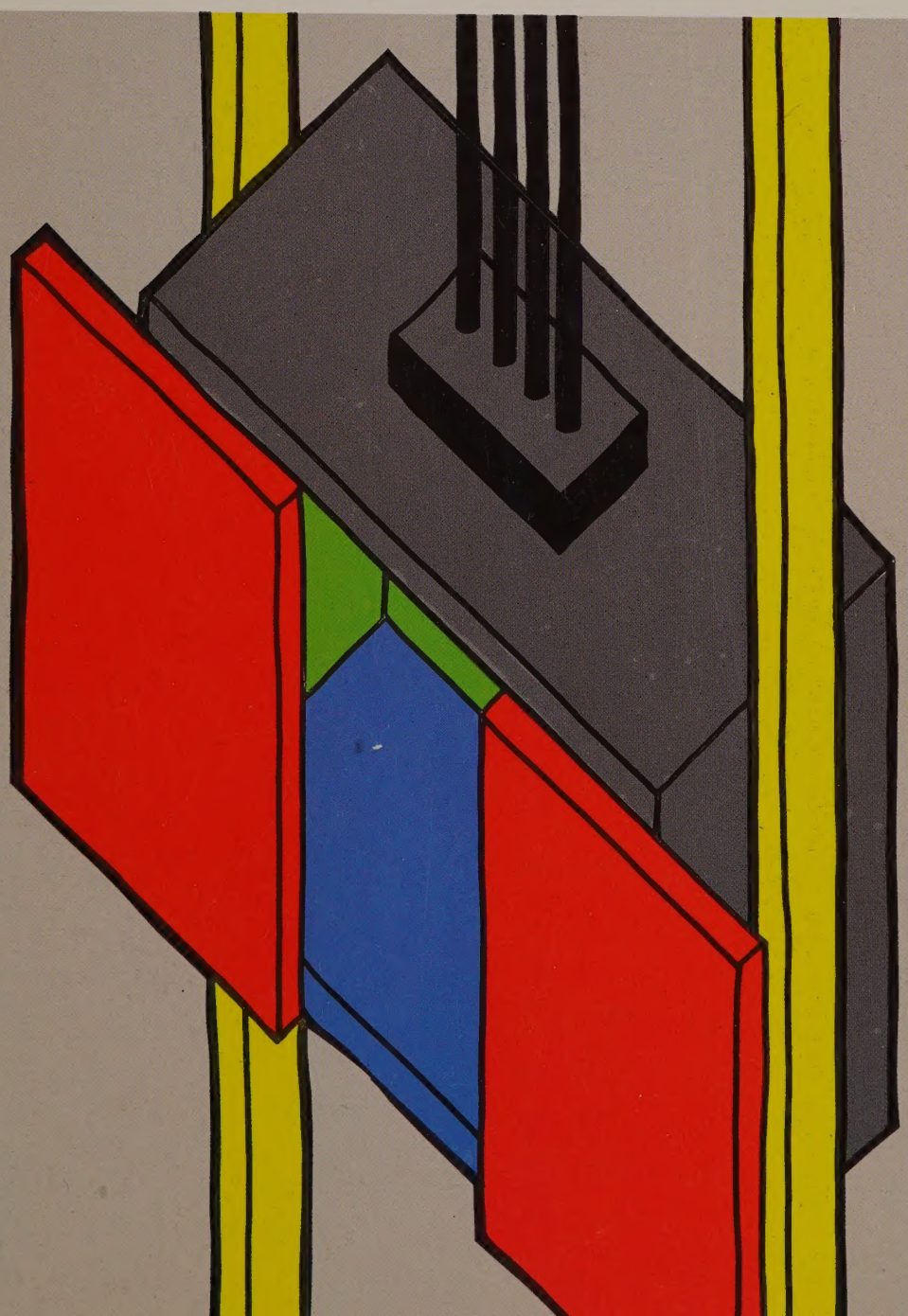
Department of Health and Social Security
and the Welsh Office

Fire Practice Note 3

FIRECODE

Escape Bed Lifts



Department of Health and Social Security
and the Welsh Office

Fire
Practice
Note 3

FIRECODE

Escape Bed Lifts

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FIRECODE brings together in one comprehensive suite of documents the Department's policy and technical guidance on fire precautions in hospitals and other NHS premises.

Basic policy, principles and key management guidance are contained in *Firecode: Policy and Principles.* Other *FIRECODE* documents include the *Health Technical Memoranda* '80' series (which give technical guidance on various building, engineering and equipment issues) and the *Fire Practice Notes* series (dealing with various specialist aspects of fire precautions) and Nucleus guidance. Existing HTMs will, in due course, be reissued in *FIRECODE* format. The suite includes *Firecode: Directory of Fire Documents* which lists references to relevant legislation and relevant fire precautions guidance issued by non-DHSS sources (as, for example, the Home Office).

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Fire Practice Note 3
Escape Bed Lifts

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Control of escape bed lifts and procedures in case of fire.

I. Introduction

1.1 This Fire Practice Note (FPN) provides technical details for the escape bed lifts referred to in Health Technical Memorandum (HTM) 81[1]. It should be read in conjunction with that HTM. It also indicates the managerial and organisational arrangements necessary to ensure that escape bed lifts are used safely and effectively in case of fire.

1.2 This FPN assumes that the structural fire protection and means of escape of the hospital, and the provision of escape bed lifts, is in accordance with HTM 81.

1.3 For the purpose of this FPN, escape bed lifts are bed passenger lifts conforming to the relevant parts of BS 5655[2] and relevant DHSS guidance, and provided with the additional safeguards and facilities described in HTM 81 and this FPN to ensure that the lift can be used safely and effectively for patient evacuation. The additional features required include a specially protected electrical power supply with additional protected standby power supply arrangements and special lift control and communication systems.

1.4 This FPN requires some communication and control facilities which are not normally provided by lift suppliers. Where such facilities are provided by other parties the specification should clearly define the extent of each party's responsibilities. Careful consideration should be given to the coordination and interfacing of all the various facilities associated with the escape bed lift.

1.5 The FPN requires the appointment of lift wardens to take control of the escape bed lifts in a fire emergency and supervise and assist the evacuation of bed-bound patients. The lift wardens are members of staff having had the necessary training.

II. Definitions

2.1 Terms used in HTM 81 and this FPN have the same meaning. The following additional terms are defined for the purposes of this FPN.

Car control station

The push button in the car for the use of passengers.

Dependent patient

A patient who cannot be evacuated, in the event of fire, by any means other than a bed, patient trolley, or similar conveyance.

Dependent department

A fire compartment on a storey that is not a ground storey containing one or more dependent patients.

Escape bed lift

A bed passenger lift protected in accordance with this note to enable it to be used to safely transport dependent patients to the ground storey in the event of fire.

Evacuation control point

The point from which the evacuation of bed-bound patients using an escape bed lift is controlled.

Evacuation control switch

A switch to bring the escape bed lift under immediate evacuation service control.

Evacuation service

The operation of a selected escape bed lift under an agreed system of management and control for the evacuation of dependent patients in the case of fire.

Lift warden

A person nominated to undertake duties in relation to the evacuation of dependent patients in case of fire by means of an escape bed lift installation. There are three types of lift warden each having separate duties, namely lift wardens (floor), lift wardens (control), and lift wardens (car). Their duties are explained in chapter 3.

Landing

The lobby, or section of the hospital street, from which the lift is entered.

Machine

The unit, including the motor, which drives and stops the lift.

Registered call

A call made on a car control station or from a landing push button which is accepted by the lift control equipment. (Note that when a lift is operating under evacuation service, any attempted call on a landing push button is not registered.)

III. Evacuation Management Using Lifts

Evacuation procedure

3.1 A lift to be used for the evacuation of dependent patients should be an escape bed lift to this FPN operated under the direction and control of lift wardens using an agreed evacuation procedure.

3.2 A sufficient number of lift wardens capable of carrying out the necessary duties should be appointed. A procedure should be laid down for ensuring that sufficient lift wardens for the various duties are always available.

3.3 The duties of the lift wardens during an evacuation are as follows:

i) **Lift wardens (floor)** - Within each dependent department to organise the horizontal evacuation of patients, assess the need for vertical evacuation, and see that the lift warden at the evacuation control point of the appropriate lift(s) knows that the evacuation service will be required (by using the communication systems, see paragraphs 6.11 and 6.12).

ii) **Lift wardens (control)** - To man the evacuation control point of each escape bed lift, or bank of lifts, to operate the evacuation control switch, and organise orderly vertical evacuation via that lift, or bank of lifts, using the communication system of 6.11.

iii) **Lift wardens (car)** - To man each escape bed lift car and control the lift car from the car control station in response to instructions from the lift warden at the evacuation control point.

3.4 A procedure should be laid down for ensuring that sufficient works staff who are authorised for dealing with failed lifts are always available (see 6.9).

3.5 Fire procedures should not include the isolation of electrical circuits supplying the escape bed lifts or associated facilities.

3.6 The Annex to this FPN discusses some additional points which should be considered in the formulation of evacuation procedures.

Out-of-service arrangements

3.7 Any escape bed lift which is out of service because of breakdown or maintenance is not then available for evacuation. A plan should be prepared and put into action at these times to minimise the hazard during such non-availability. This plan should include warnings to all staff explaining the situation and the need for scrupulous fire precautions and extra vigilance to prevent fires.

3.8 The evacuation procedure should include contingency plans for the failure of a lift or group of lifts under evacuation service.

Fire drills

3.9 Regular drills using the escape bed lifts should be carried out to test the evacuation procedure, and ensure its continued effectiveness. These drills should include scenarios where lifts are unavailable, or become unavailable during the course of the incident. "Authorised Persons" from works staff (see 6.9) should be present at such drills and the procedures for releasing trapped passengers should be practised.

IV. Escape Bed Lift Provision

4.1 Sufficient escape bed lifts should be provided and sited to meet the recommendations of HTM 81.

4.2 Where an escape bed lift is one of a group of lifts in one protected enclosure, all the lifts in the group should be escape bed lifts in accordance with this FPN. At least one additional escape bed lift remote from these lifts will be necessary to satisfy HTM 81 paragraph 18.42.

V. Construction

General

5.1 The structural layout and constructional details of the escape bed lift installation should be as set out in HTM 81, paragraphs 18.37 - 18.48. HTM 81 requires the enclosure to the escape bed lift to be constructed as a protected shaft.

5.2 Any health authority electrical sub-station, standby generator, installation distribution equipment, cabling, or other apparatus supplying the machinery and controls for an escape bed lift should be protected from the action of fire for a period of not less than that specified for the enclosure to the lift installation.

Machine room construction

5.3 The machine (or pump) room, and any power transmission circuit (eg cabling or hydraulic circuit) between it and the lift should be contained within the same protected shaft as the lift, or be protected against the action of fire for a period not less than that required for the structural fire protection to the lift enclosure.

Escape bed lift cars

5.4 The car of an escape bed lift should comply with the relevant requirements of BS 5655[2] with the following additional recommendations:

i. The internal dimensions of the car should be not less than that required to hold the occupied bed and its ancillary equipment, an attendant, and a lift warden. Standard car sizes to accommodate standard "King's fund" beds are given in the ergonomic data sheets for bed passenger lifts in HBN 40 Volume 3[3].

ii. The rated speed of the lift should be such that it will run its full travel in not more than one minute.

iii. The car should be clearly and conspicuously marked with a notice complying with the fire safety sign requirements of BS 5499 : Part 1[4] stating "ESCAPE BED LIFT: DO NOT USE FOR GOODS OR REFUSE".

(Note: The lift may be used for light goods necessary for the day to day running of the ward, for example trolleys containing medical supplies, library or meals-on-wheels service; in no circumstances should it be used for transporting heavy goods.)

VI. Technical Recommendations

Electrical supplies

6.1 The electrical supply to each escape bed lift should be from a circuit dedicated to the lift and separate from any other building services, except as permitted by paragraph 6.2.

6.2 Where more than one escape bed lift is in the same protected shaft, they may be fed from the same circuit, provided that it is adequate for this purpose and that a fault occurring in any one lift will not affect in any way the operation of any other.

6.3 A standby electrical supply should be provided to ensure that the escape bed lifts and their associated facilities continue to be available in the event of failure of the normal supply. The standby should be from the hospital's automatic start emergency generator service, or, where this is not possible, from an alternative public electricity supply sub-station. In the event of failure of the normal supply, the standby supply, from whatever source, should be provided automatically by suitable changeover equipment.

6.4 Cables transmitting the standby power supply should be routed separately from those of the normal supply or physically protected so that a breakdown, or any cause of breakdown, on one cable cannot lead to a simultaneous failure of the other supply.

6.5 Cables supplying escape bed lifts, other than those located within the lift enclosure, should be protected throughout their length within ducts or vertical shafts against the action of fire for a period not less than that required for the structural fire protection of the lift enclosure, or should be classified as CWZ in accordance with BS 6387[5].

6.6 Appropriate safeguards should be applied to ensure that failure, or cause of failure, of any one of the lift lighting, driving and control, or communications circuits and equipment, does not lead to failures in any of the remaining services.

6.7 All switchgear controlling supplies to escape bed lifts should be secured against unauthorised operation and clearly labelled "ESCAPE BED LIFT : DO NOT SWITCH OFF".

Release of passengers from failed escape bed lifts

6.8 The provision for emergency operation of failed lifts, and the procedures for releasing passengers should be as set out in SIB (7) 1[6]

6.9 If an escape bed lift failed during an evacuation the need to release the lift passengers could be urgent. A sufficient number of authorised and trained personnel (as referred to in SIB (7) 1 paragraph 6) should always be available to carry out manual or emergency electrical operation of the lifts. This will require the discipline of a duty roster.

Evacuation control point

6.10 Each escape bed lift, or group of lifts, should have associated with it an evacuation control point from where a lift warden (floor) can bring the lift(s) under evacuation service control and organise the vertical evacuation of bed-bound patients. The evacuation control point, which will normally be in the ground storey lift landing, should be located in a protected lobby, hospital street or protected escape route.

Communications systems

6.11 In addition to the emergency alarm devices required by clause 14.2.3 of BS 5655 : Part 1, an intercom system or similar device should be provided for two way speech communication between the evacuation control point and each lift landing, the lift car, and the machine room, whilst the lift is under the control of the evacuation switch. All communication should be with the evacuation control point, ie lift landings, the lift car, and the machine room cannot communicate directly with each other. Careful consideration should be given to the type of communication system provided, for example, should telephone operator type headsets be provided at some or all of the communication stations?

6.12 Where confusion might arise if the intercom system of paragraph 6.11 was the only means of communication between the lift landings and the evacuation control point, for example in a tall building with a large number of dependent departments, a signalling and indicator system should be provided to indicate to supervisory staff that patients are awaiting the evacuation service, and at which landings they are waiting. This should comprise a manually operated signalling device at each landing served by the lift, and an indicator panel at the evacuation control point.

6.13 Consideration should be given to providing a direct communication link between the evacuation control points of the escape bed lifts. At times of stress such links could prove valuable in transferring patients horizontally between lifts to relieve congestion.

Evacuation control switch

6.14 The escape bed lift should be provided with an evacuation control switch to enable the lift wardens to obtain immediate control of the lift. The switch should be positioned at the evacuation control point and clearly marked "ESCAPE BED LIFT". The switch should be enclosed in a 'break glass' box. The operation positions of the switch should be clearly marked "ON" and "OFF".

6.15 Where two or more escape bed lifts are installed together in one protected shaft one evacuation control switch should be provided which should cause all the lifts in the shaft to respond as required by this FPN.

6.16 On operation of the evacuation control switch, all lift controls and safety devices should remain operative except as specifically recommended to the contrary in this FPN. In particular, the evacuation control switch should not override the inspection control or stop switch on the car top, nor the stop switches in the pit, the machine room or the pulley room.

6.17 Operation of the evacuation control switch should ensure the following:

i. The associated escape bed lift(s) travel without stopping to the ground storey, or to the level of the evacuation control point if different.

ii. All landing call buttons and any group collective control system are rendered inoperative.

iii. All car preference switches are rendered inoperative.

iv. The evacuation communication systems (paragraphs 6.11 - 6.13) are operative.

6.18 After the lift has parked, with doors open, in response to operation of the evacuation control switch, sole control of the lift should then be vested in the lift car control station, and the following should be ensured:

i. It should be possible to register a call to any selected landing. Registration of a call should cause the doors to close and the lift car to travel to, and stop with the doors remaining closed at, the required landing.

ii. If the car is in motion, it should be possible to register further calls from within the car. The car should stop at the nearest landing in its current direction of travel for which a call is registered. When the car stops, all calls so registered should be automatically cancelled and the car should not depart until a fresh call is registered.

iii. It becomes possible to control the opening of the car doors only by the application of constant pressure on the 'door open' button or switch. If the button or switch is released before the doors are fully open the doors should automatically re-close. Once fully open the doors should remain open until a fresh call is registered on the car control station.

6.19 Effective means should be provided:

i. within the lift car to indicate the confirmation of all calls registered on the car control station, and

ii. both in the car and at the evacuation control point to show the position of the car at any time, whether the car is in motion or at rest.

Lighting

6.20 Lighting of lift cars, landing, machine and pulley rooms should be in accordance with BS 5655: Part 1.

Ventilation

6.21 Ventilation to the lift car, lift well, and machine room should be in accordance with BS 5655 Part 1.

Smoke dispersal

6.22 Smoke ventilation of, or pressurisation to, the lift landings should provided in accordance with the requirements for hospital streets in HTM 81 paragraph 16.9.

Installation and commissioning

6.23 Lifts should be installed to the general requirements of BS 5655 : Part 6 as supplemented by this FPN. Commissioning should be in accordance with the principles set out in HTM 17[7], and the recommendations of BS 5655 : Part 10.

6.24 As well as the normal commissioning checks for lifts, the additional facilities required by this FPN should be thoroughly checked. In particular, it should be demonstrated that the evacuation control switch, and communication systems, function as required by this FPN. The tests given in BS 5588 : Part 5 Appendix A[8] may be used as a guide.

Reliability and maintenance

6.25 The escape bed lift evacuation procedure demands a high level of reliability and lifts should be maintained in accordance with ESTMANCODE[9] and the WIMS Advice Note Library[10]. In addition, the control, communication and any signalling systems required by this FPN should be fully tested at least once within every period of six weeks. At the same time the lift should be tested to check the effectiveness of the standby electrical supply change-over arrangements.

6.26 Routine maintenance should be arranged so that only one escape bed lift in the building is unavailable at any time.

6.27 Arrangements should be made to ensure that all defects and breakdowns are reported and dealt with expeditiously and that escape bed lifts are restored to full service as soon as practicable.

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4. British Standards Institution. BS 5499. Fire safety signs, notices and graphic symbols. Part 1 : Specification for fire safety signs.

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9. Department of Health and Social Security and Welsh Office. ESTMANCODE. London, HMSO.

10. Department of Health and Social Security. Works Information and Management System. Advice Note Library. DHSS.

Annex
Control Of Escape Bed Lifts And Procedures In Case Of Fire

It is important that escape bed lifts are used to evacuate only dependent patients in case of fire as otherwise unacceptable delays will arise if they have to compete with other people for the lift service. The control system recommended in this FPN is essential to ensure that the lift car is taken only to those levels from where dependent patients require vertical evacuation.

To make effective use of such a system of control the appointment of lift wardens is necessary and they should be readily available to undertake their designated duties quickly and efficiently at all material times.

The duties of the lift wardens are explained in Section 3. It will normally be desirable for lift wardens (floor) to be drawn from staff of the dependent departments having a knowledge of the medical condition of the dependent patients - usually this is the nurse in charge; and lift wardens (control) and (car) to be drawn from staff located close to the evacuation control points.

The procedure for using the escape bed lifts should be agreed with all parties concerned, and should be an integral part of the fire plan for the hospital. The detailed arrangements will be a matter for local decision. The procedure described below is an exemplar which should cover most situations but may require adapting to suit local circumstances. The plan should include arrangements to effect a safe evacuation should one of the lifts, or bank of lifts, be unavailable or become unusable during the fire.

Exemplar procedure

In the event of a fire, lift wardens should go to their appropriate assembly points ready to carry out the evacuation procedure. Authorised persons from works staff should go to each evacuation control point ready to deal with the release of trapped passengers, should the need arise.

In the event of fire necessitating the evacuation of dependent patients, the affected patients should be moved away from the effects of fire on the same floor following the principle of progressive horizontal evacuation (see HTM 81). This evacuation should be along a route free from the effects of fire leading ultimately to an escape bed lift unaffected by fire or smoke. Horizontal evacuation is considered preferable to vertical evacuation where dependent patients are concerned. Horizontal evacuation should therefore be in a direction that maximises the number of fire-free compartments or sub-compartments available before vertical evacuation is necessary.

Whilst it may not be necessary to evacuate vertically using the escape bed lifts initially, or at all, a state of readiness should be achieved. Vertical evacuation should be started sufficiently early in the event of fire to ensure the safety of all dependent patients on the affected floor(s). The decision to commence vertical evacuation will depend upon the particular circumstances of the incident, and will include the following factors:

- The location, size and rate of growth of the fire.
- The number and condition of the dependent patients.
- The number of escape bed lifts available, and their position in relation to the fire.

In the event of an escape bed lift becoming unsafe, a lift warden (control) should, if possible, remain at the ground floor landing of the affected lift to advise lift wardens (floor) who might request the lift from other landings that that lift is no longer safe. These wardens can then make arrangements to evacuate their patients using an alternative lift.

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